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THE REQUIREMENT FOR AN ABBREVIATED
MILITARY DECISION-MAKING PROCESS IN DOCTRINE

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

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13. ABSTRACT (Maximum 200 words) This study investigates the necessity of an abbreviated military decision-making process for battalion and brigade commanders and their staffs. It examines the problem that during time critical situations commanders and staffs abbreviate the decision-making process and frequently deviate from the doctrinal method. The study researches doctrinal and nondoctrinal publications to determine if an abbreviated process exists and compares the doctrinal process to unit performance at the National Training Center. It identifies that doctrine for decision-making is not standardized, with different methods described depending on the field manual. The study identifies the steps of the military decision-making process that are omitted or poorly conducted and provides techniques to solve the problem. It then promotes the use of the military decision-making process, even during time critical situations by abbreviating the process with techniques to speed the process.			
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The observation team observed one battalion and its parent brigade during two missions of the force-on-force exercise. The team concluded from observations that:

1. Battalion and brigade staffs do not follow the doctrinal military decision-making process.
2. Battalion and brigade staffs abbreviate the military decision-making process by neglecting steps, rather than decreasing the time necessary within a step.
3. The commander determines what the process used by the staff will be. He determines what products the staff provides, including COA, staff updates, and estimates.
4. The decision process used is characterized by the commander, executive officer, and S-3 developing a single plan with or without adequate knowledge of the enemy.

Executive Summary National Training Center Focused

Rotation 90-3 Battle Staff. Is an NTC Operations Group document summarizing the findings of a CALL combined arms assessment team (CAAT). The purpose of the collection team was to determine problems with the decision-making process that hindered the ability of battalion and brigade battle staffs to plan effectively. The team was organized with subject matter experts from CALL, the Infantry School, the Fire Support Center, the Engineer School, the Intelligence

School, the Soldier Support Center, the Air Defense School, the Logistics Center, the Tactical Commander's Development Course, and the Sergeant Majors Academy.

The CAAT observed both battalion task forces and the brigade during ten days of the fourteen day rotation and during five force on force missions. There were three primary findings and 38 observations identified in the report. The first finding was that battalion and brigade battle staffs do not understand the details of the decision-making process. The result was the staff often deletes steps of the military decision-making process or conducts the step poorly which then results in a flawed plan. The second finding was that the decision-making process is too long and difficult to conduct in a "time critical situation." The third finding was that staffs failed to manage available time by prioritizing the critical steps of the military decision-making process and ensuring these steps were completed.

Summary

The review of literature identifies that there are problems with command and control doctrine in its description and intent of the military decision-making process. Doctrine tends to confuse decision-making by providing different interrelated processes throughout all manuals. It further obscures decision-making by

establishing a formal process in some manuals and a verbal and mental process in others. Then it continues to confuse the subject by providing insufficient detail for steps within the process in FM 101-5, while adding detail in other manuals that are different.

The doctrinal basis for the military decision-making process is FM 101-5. The process is described as a procedure used by the commander and his staff to arrive at and execute tactical decisions. It is characterized as a formal process in which the commander and staff exchange information, develop and analyze possible COA and then produce a plan.

The explanation of the military decision-making process is divided between chapter five and Annex E. Chapter five gives a general, but partial, description of the process. It focuses on the figure that depicts the military decision-making process. Although this figure is the core of the process, there is insufficient content to describe how the process is conducted by the staff. Annex E; however, provides some description in the explanation of the commander's estimate. The annex still does not provide sufficient information as it only elaborates on the steps conducted in the commander's estimate and decision. The separation of these portions of the military decision-making

process confuse the procedure because some detail is contained in chapter five, some in Annex E, and some is absent entirely.

In addition to the separation and lack of detail in FM 101-5, doctrine confuses the matter of decision-making by addressing several similar methods. Manuals other than FM 101-5 address the troop leading procedures, the estimate process, and the command and control process as the means for the commander and staff to develop decisions. The similarity in these processes is that at some point they relate to the military decision-making process. The description of troop leading procedures contains the military decision making process, while the military decision-making process contains the commander's estimate (estimate of the situation) and the command and control process contains the estimate of the situation. This is the result of different authors and proponent schools writing doctrine.

The fact that different proponent schools write manuals that address the military decision-making process in their command and control chapter also accounts for the intent of the process. FM 101-5 characterizes the process between the commander and the staff as a formal one. It is conducted in sequence with separate procedures within each step, for example wargaming is a procedure within COA analysis, and COA analysis is a procedure within the

commander's estimate all within the military decision-making process. In time critical situations the commander is guided to complete his estimate based on personal knowledge rather than continue a formal process between he and the staff. However, FM 71-3, Armored and Mechanized Infantry Brigade prescribes an informal verbal and mental process. These two explanations are contradictory. One decision-making process is formal, the other informal.

The amount of other doctrinal and nondoctrinal publications containing detail on how to conduct the military decision-making process confirms that doctrine is deficient. There is little order to the description in FM 101-5, it does not explain the military decision-making process from beginning to end, and it neglects the detail required to conduct each step of the process. While FM 7-20, The Infantry Battalion, does provide some detail to conduct steps within the military decision-making process (mission analysis and commander's estimate); its methods are different than those contained in FM 71-123, Tactics and Techniques for Combined Arms Heavy Forces. The planning guides produced by the infantry school together with ST 100-9, The Command Estimate Process also provide greater detail than FM 101-5 but are different in some of their procedures (COA development). Therefore, doctrine provides a basis for the military decision-making process; however, it needs greater detail and arrangement.

CHAPTER 3

RESEARCH METHODOLOGY

The methodology for this thesis consists of two phases. Phase I consists of three steps: definition of the problem, literature review and research. The second phase consists of three steps; develop hypothesis, test hypothesis, and derive conclusions and recommendations.

The observed problem that leads to the research question is that battalion and brigade staffs have difficulty conducting the military decision-making process during a time critical situation. As a result of this observation the first phase of the study examines whether Army doctrine develops and prescribes an abbreviated military decision-making process for battalions and brigades. The problem focuses the literature review and research to determine if an abbreviated military decision-making process exists either in doctrine or other publications. The review of doctrine, reports, student texts, theses, and the ALLMIS data base, together with documents on combat operations, will provide the answer. This phase will determine if the decision-making process described in FM 101-5 is effective or if an abbreviated process is necessary. This will be determined by reviewing

the National Training Center (NTC) command and control and maneuver annexes of take home packages, rotation executive summaries, and focused rotation executive summaries.

Comments from observer/controllers will indicate what steps of the military decision-making process are being conducted and how efficiently the staff conducts them. It will also provide information on other factors that impact on a commander and staffs' ability to conduct the decision-making process.

If the conclusion is that an abbreviated military decision-making process is necessary, phase II of the methodology will continue to research literature to determine an alternate decision-making process from that described in FM 101-5, Staff Organizations and Operations. This phase will also determine if an abbreviated process has been developed or provide the foundation to develop new one. Phase II will also research unit performance using the content analysis methodology to identify what is required in an alternate process.

Upon completion of phase II of the research, an abbreviated decision-making process will be developed as an hypothesis. Information from the NTC and related documents will be used to determine the success of each step of the proposed abbreviated process. Finally, the abbreviated process will be recommended to the training and doctrine command (TRADOC) as part of the conclusion of this study.

Unit Performance Methodology

Information on unit performance during simulated combat operations is the result of observations from National Training Center take home packages from seven rotations during 1989, 1990, 1991 and 1992. These rotations consisted of the training of fourteen armor, mechanized and infantry battalions, and seven brigades. Of these rotations, information was collected and analyzed on thirteen battalions and five brigades, the missing battalion and two brigades were not available within the take home packages.

During the time of these rotations Forces Command (FORSCOM) had six heavy divisions and two separate brigades that totaled seventeen brigades and forty-one battalions all of which rotated through the NTC during the four years observed. Therefore, the population analyzed represents approximately thirty percent of the force.

Take home packages are designed to provide the training unit with information on its performance to assess its ability and determine future training requirements. Information is organized by battle, usually eight per rotation, and by battlefield operating system (BOS). The information consists of narrative observations of how the unit performed together with summaries of the key points the unit needs to emphasize during training.

The information from the take home packages also provides subjective indicators of a unit's performance within specific areas. A unit's performance during the military decision-making process is one of the areas within the command and control BOS that by collecting and categorizing subjective observations can identify the steps of the process that require doctrinal or training solutions.

The information collected by observer/controllers throughout these rotations was not done using a standardized collection instrument. Observer/controllers collect information by making subjective observations using their training and experience. Observations made on the unit's conduct of the military decision-making process were the result of observer/controllers understanding of what doctrine demands, and not the result of a mission training plan (MTP). Therefore, information can be inconsistent because of the difference of observer/controller expertise.

Reliability and validity during content analysis can be hampered by the lack of standardization in the collection of information. However, the problem of standardization can be solved by the creation of a separate collection instrument, used by a single analyst, and the frequency of observations collected.

There are three types of reliability applicable to content analysis: stability, reproducibility, and

accuracy.¹ Stability is the extent to which the results of content classification vary over time. Reproducibility is the extent to which content classification produces the same results when the same text is coded by more than one coder. Accuracy is the extent to which the classification of text corresponds to a standard.

In the collection of subjective observations we assume there is stability in that observer/controllers collect information against the standard prescribed in the command and control doctrine. FM 101-5, dated May 1984 provides a framework for the collection of data concerning the military decision-making process. Since the doctrine was published before the NTC rotations analyzed in this study, one can assume that observations are made against the same standard, thus providing stability.

The collection of observations may provide reproducibility given that multiple observer/controllers, from different teams, over an extended period of time, provide observations using the same doctrine. Even though there is a probability that observer/controllers provide observations based on their experience that may result in different results, some of the problem can be solved by interpretation by a single knowledgeable analyst. For example, an observer/controller may comment that the staff did not conduct mission analysis correctly because it did not consider all the tasks directed to the unit, resulting

in a negative observation. While another observer/controller may comment that the same unit conducted mission analysis, though not identifying that all tasks were not considered, resulting in a positive comment. With a separate collection instrument an analyst can separate the observations to ensure that it measures both the conduct of mission analysis and the staff's proficiency during mission analysis.

With the collection of observations from the take home packages, one has to assume accuracy since the only standard is the command and control doctrine contained in FM 101-5. Although, the standards in doctrine are not well defined, one can determine by the content of the observations that the observer complied with his interpretation of doctrine.

The information provided by take home packages does have reliability even though there is not enough information that each observer/controller used the same standard within doctrine. By understanding how observer/controllers use doctrine as the standard to comment on unit performance and that they are well trained in the BOS that they observe, one can determine reliability primarily through stability and reproducibility.

Validity is the extent to which an instrument is measuring what it is intended to measure, it designates quality of results.² Validity in this analysis is weakened

by the absence of a standardized collection instrument used by the observer/controllers, one assumes that their observations are valid. Because this is assumed, it is considered to be "face" validity.³ Despite the expertise of the observer/controller one accepts the observation at face value. However, the validity of the information is strengthened by the use of a separate standardized collection instrument by the analyst. The standardized collection instrument is developed with collection points important to the analyst and do not vary over the number of units observed. Therefore, the instrument collects and measures that which it is intended to measure.

The information used for analysis of unit performance of the military decision-making process came from the command and control, maneuver, live fire, and trends annexes of the take home packages. Using these specific annexes rather than just the command and control annex provides validity to the collection of information. The annexes are written by different observer/controllers on the training teams, therefore ensuring greater validity when similar observations appear in a variety of annexes. For example, the maneuver annex states that "the commander's guidance was not specific enough to give the staff direction." While the command and control annex states "the commander failed to give adequately detailed planning guidance to the staff."

Summary

The methodology is designed to answer the primary question of the thesis: Should Army doctrine develop and prescribe an abbreviated military decision making process for battalions and brigades? It is organized into two phases to accomplish three tasks:

1. Determine if an abbreviated military decision-making process exists in doctrine or other publications.
2. Determine if the military decision-making process in FM 101-5 is effective for rapid decision-making, or if an abbreviated process is necessary.
3. Support a recommend decision-making process to assist battalion and brigade commanders to plan rapidly.

CHAPTER 4

ANALYSIS

Introduction

The brigade was able to prepare and issue an OPORD in only two hours; however, there was no time available for staff sections to integrate their portions of the plan, nor was any wargaming of the selected COA done. Additionally, the OPORD was issued verbally and no graphics were available.

National Training Center (NTC)
Brigade observer/controller

The above illustration describes a common method commanders and staffs use to abbreviate the military decision-making process. It is characterized by possibly satisfying the one-third time guidance recommended in doctrine, but lacking the detail necessary to successfully execute the plan. The reason that the detail doesn't exist is that it is not developed or only partially developed resulting from elimination of key steps in the military decision-making process.

To develop detail and satisfy the one-third time guidance a commander and staff must abbreviate the process retaining all essential steps. However, doctrine suggests that commanders to avoid or partially conduct these steps. Literature and doctrine identify abbreviated processes;

however, they are primarily mental and informal rather than deliberate. The guidance doctrine provides for decision-making during time critical situations is that commanders may be forced to complete his estimate based on his personal knowledge.¹ Additionally, the commander skips tasks normally associated with the formal decision-making process.² The common result is that the staff is not integrated in the military decision-making process and that the steps that are omitted are those that are most time consuming and difficult to accomplish (course of action [COA] development and COA analysis).

Phase one of the thesis methodology indicates that an abbreviated military decision-making process is necessary. Yet what is required is an abbreviated process that guides commanders and staffs to develop plans quickly with detail. This is demonstrated in recent surveys, and collection efforts by the Army Research Institute (ARI), and the Center for Army Lessons Learned (CALL).

Related findings demonstrate that units need to plan quicker, but that commanders and staffs in the field consider doctrine to be valid. The 1988 CALL field survey, conducted at the NTC, on the military decision-making process assessed units' ability to fulfill the doctrinal time guidance and to accomplish the mission. Results show that only 55% of units observed determined and achieved the one-third time guidance. While units accomplished the

mission and specified tasks only 30% of the time. The collection and analysis of take home package observations for this thesis indicates that no observer/controller observations stated that unit plans had sufficient detail. On the other hand, information from the ARI operations DESERT SHIELD and DESERT STORM surveys cite that 84% of commanders and staff officers believe that the command estimate is adequate to plan.

These findings indicate that about one in two units can develop a plan in a timely manner, but that the plan does not have sufficient detail and it does not help subordinates accomplish the mission. However, it is believed that the command estimate, that is a large part of the formal military decision-making process, is sufficient.

Therefore the answer to the question of whether Army doctrine for command and control, (FM 101-5 Staff Organization and Operation) should develop and prescribe an abbreviated military decision-making process for battalions and brigades is yes. However, the military decision-making process as described in doctrine need not be changed but revised to provide greater detail and guidance.

To analyze information within the steps of the military decision-making process, a collection instrument was developed. The collection instrument divided the steps into subordinate tasks conducted, for example the staff estimate step collected information on the subordinate tasks

of COA development and COA analysis, which included wargaming and COA comparison. Observation frequency was then determined for each task to indicate positive or negative performance. To determine performance, all annexes were analyzed to determine frequency of observations, but only within the same battle. For example, the command and control annex would have an observation on commander's planning guidance for battle number one while the maneuver annex would have a similar observation for battle number four. This would be assessed as two separate observations while if both had been within a single battle it would have been considered as one observation.

Collection and analysis of information from the NTC take home packages were organized by the nine identified steps of the military decision-making process.

1. Mission Received
2. Information to Commander\Staff
3. Mission Analysis, Restated Mission and Commander's Planning Guidance
4. Staff Estimates
5. Commander's Estimate, Decision and Commander's Concept
6. Preparation of Plans\Orders
7. Approval of Plans and Orders
8. Issuance of Plans\Orders
9. Supervision

An additional category of general information was used to collect information that applied to the military decision-making process, but did not apply to any single step of the process. Reliability of the information resulted by placing the same types of observations within the categories throughout all rotations. For example, all observations on the number of courses of action developed or the method used to develop them were categorized under the step of staff estimates.

Of the nine steps in which information was collected, steps one (mission received), two (information to commander/staff), and seven (approval of plans and orders) did not have any or very few observations associated with the step. This is either an indication that it was not a major area observer/controllers look at or that there were few problems in this area. Given the amount of observations in all other steps, the absence of observations for these three indicates they were not observed.

Mission Analysis, Restated Mission,
and Commander's Planning

Information categorized in this step of the military decision-making process were divided among the topics of mission analysis, restated mission and commander's planning guidance. The topic of mission analysis included observations on whether and how proficiently mission

analysis was accomplished. The topic of the restated mission included whether a restated mission was provided or approved by the commander. Commander's planning guidance included observations on whether the commander provided planning guidance, how timely was the guidance, and was the planning staff present.

In order to determine the proficiency of a commander and staff in their conduct of the military decision-making process one must compare performance to a standard. The standard is the requirement identified in doctrine, specifically FM 101-5 which prescribes what steps are contained in the military decision-making process. The standard stated for the step of mission analysis requires that the unit identify the tasks it must perform, the purpose to be achieved and the constraints on the unit's actions.³

Information collected under the topic of mission analysis indicates that mission analysis was always conducted, but of the units observed, 30% did not identify all the tasks necessary. Doctrine states that the tasks to be identified are specified, implied and essential. However, observations do not identify which types of tasks are neglected in mission analysis. It cannot be determined if staffs neglected to identify tasks because they didn't know how or were not trained to identify them all.

Therefore, it cannot be determined if the problem of identifying all the unit's tasks is a training problem or a doctrinal problem.

The annex listing mission statements within the take home package indicates that the commander and staff always restated the mission. Observations on the topic of a restated mission indicates that in 20% of the units observed, the restated mission was developed by the staff and approved by the commander.

On the topic of commander's planning guidance there were observations provided for all units in each rotation. Observations indicated that 70% of commander's provided planning guidance. However, 75% of the observations indicated that the commander's guidance was deficient. This indicates that only 18% of the staffs received adequate commander's guidance.

The most frequent observation was that the commander was not detailed enough in his guidance. Doctrine does not specifically identify what is to be included in the commander's planning guidance, but it does provide some examples. Doctrine states that guidance is used to direct or to guide the attention of staff estimates and to expedite the decision-making process. Therefore observations that state that insufficient guidance was not provided indicates that the commander did not focus the staff on the remainder of the military decision-making process.

If 75% of the observations indicate that commander's planning guidance was deficient in detail perhaps it is because either commander's don't know what to provide their staff or don't know how much to provide their staff.

Doctrine recognizes that there is a balance in commander's planning guidance between the commander and the staff.

FM 101-5 states that "in deciding what, if any planning guidance is necessary, the commander must take care not to unduly bias staff estimates." However, doctrine does not identify what a commander provides to his staff or how he provides it. It does identify guidance that may be provided to the staff, but there is no encompassing list of guidance points to be provided all staffs.

A topic identified in doctrine that should be contained in mission analysis is time management. Time management concerning planning is the commander's plan and execution for the allocation and use of available time. This enables the commander to ensure that there is sufficient time to conduct the military decision-making process, by allocating time for each step and providing time to subordinates to plan and prepare for the operation. Time management is not addressed in FM 101-5 as part of mission analysis, but is addressed in Student Text 100-9, The Command Estimate Process, a Command and General Staff text that describes the conduct of the military decision-making process. ST 100-9 states that during mission analysis the

staff develops an initial time analysis, and continuously analyzes time until the mission is completed.

Two collection points were used to determine the proficiency of time management:

1. Was a time analysis conducted?
2. Was the time analysis effective in planning and preparation?

Observations concerning time management indicate units have a significant problem with time management. Although, 88% of the observations were positive indicating that the commander and staff developed a time analysis and plan 82% of the observations stated the time analysis or plan was ineffective. These observations indicate that only 16% of the units observed developed effective time plans.

Specific problems indicated in time management observations were that the time plan was incomplete, not developed by the entire staff and had no appreciation of the time required. The first two problems on time management are similar. The first, that the time plan was incomplete, indicates that tasks for planning and preparation were missing. While the second indicates that the entire planning staff was not involved in developing the time line, thus leaving tasks out.

The fact that staffs conduct time analysis, develop a plan and time line, but fail to plan proficiently indicates this is a doctrinal problem. There is little instruction on

how to plan for the use of time by identifying all the tasks necessary for planning and preparing for an operation and then allocating time for these tasks using historical data determined through unit training or the staff's best estimate of mission duration.

With instruction in doctrine on how to plan for and manage time, units could improve significantly.

Observations on a battalion in which the observer/controller quantified the amount of time the unit used to plan over six battles identifies a significant improvement. The staff began the rotation by using more than 55% of the available time for planning. The staff then improved in each of the remaining battles by using 55%, 39%, 40%, 29% and finally 32% of the available time.

There are two variables that influence the improvement of time management: instruction and training. Instruction is provided by observer/controllers on how to plan and manage time while training is the result of the repetitive experience of planning new operations throughout the rotation. Personal staff experience in a training unit at the NTC impresses me that if all units had the benefit of the instruction provided by NTC observer/controllers that units could adhere to the one-third available time guidance. Therefore a correction to doctrine by adding time management instruction would improve unit performance in the military decision-making process.

Staff Estimates

The military decision-making process step of staff estimates takes into consideration all staff estimates of the situation and the role of each staff estimate in the military decision-making process. This thesis does not address all staff estimates, but focuses on the commander's estimate of the situation or operation officer's estimate and its separate tasks. The reason for this is that the commander's estimate results in a decision on how to accomplish the mission, while the staff estimates provide the commander with information, conclusions, and recommendations that assist the commander in his estimate of the situation.

In the step of staff estimates this thesis concentrated on the tasks of COA development and COA analysis, with COA analysis separated into the sub tasks of wargaming and COA comparison. Additionally, staff integration and participation in COA analysis was examined as participation by the entire staff is necessary to effectively conduct the commander's estimate of the situation.

Military decision-making process doctrine addresses the commander's estimate both in chapter five decision-making, and Annex E (estimates). Chapter five provides only the purpose of the estimate and a brief description of the commander's and staff estimates. In relation to time

critical situations, the text does state that an estimate is as thorough as time and circumstances permit and that detail varies by level of command. There is no detail provided as to the content or how to develop the commander's estimate.

Annex E; however, outlines the basic format and content of the commander's estimate, but still does not provide detail on procedures to develop COA, wargame, or compare COA. The outline of the annex provides guidance to the individual formulating COA to use the listed criteria as a guide. The content continues with a list of criteria; feasibility, capability of the unit, sufficient detail to be distinguishable, and mission accomplishment. It continues to provide some detail as to what should be included in a COA. The guidance indicates that the amount of detail included in the elements of a COA is a matter of judgement; however, it does provide an offense and defensive example. The examples list the content of a COA as what (attack, defend), when, where, how (use of available means), and the why (purpose of the action).

To determine unit performance compared to the standard established in doctrine, four questions were used in the collection instrument:

1. Were COA developed?
2. Were multiple COA developed?
3. Was there an identifiable method in the development of COA?

4. Were the COA developed effectively, considered all tasks, all assets?

The first two questions were used to determine if commanders and staffs were able to develop COA and if they concentrated on one or more COA. While the third question was to determine how commanders and staffs were developing COA since there is no procedure identified in doctrine. The fourth question was to determine if the COA developed accomplished the mission.

The information collected indicated that there were several problems with this portion of the commander's estimate. All the observations concerned with the development of COA indicated that the commander and/or the staff always developed COA. However, multiple COA were only developed 45% of the time.

There could be two reasons for this problem, first the commander's guidance limited the staff to a single COA or the staff ran out of time for COA development. Both of these reasons are time related, assuming that the commander would have estimated that the time available for planning was insufficient to develop multiple COA and guided the staff to focus on one COA. One unit's observations indicates this as a reason stating that "COAs were always developed except when time was critical." However, there were no other observations that reported that the commander focused the staff by requesting one COA. Also, considering

that only 12% of the units observed received effective commander's guidance, it is more likely that the staffs ran out of time. This indicates that staffs were not focused on just one COA, but unable to develop multiple COA with the time available.

The second problem is that the COA developed were not effective. All observations identifying COA effectiveness indicated problems, with the majority indicating that COA developed before the situation template, COA developed before the commander gave planning guidance, and only select members of the staff involved in COA development. The problem of effective COA is substantiated with observations on the completed plans. Results from the information collected on the detail of the plan show that there are no observations specifying that plans had detail. This indicates there is a problem with developing detail, which could result from a variety of factors, wargaming, staff integration, and staff expertise, but begins at COA development.

The third problem is that there was no identified procedure to develop COA. This may be the result of observer/controllers not collecting information on COA development procedures. However, given the number of observations that identify ineffective COAs together with the fact that doctrine does not identify a procedure may

indicate that the staff did not have a procedure and may have just developed a scheme of maneuver rather than a COA with detail.

The three problems concerning unit performance in COA development: development of multiple COA, development of effective COA, and the development procedure could be the result of training or doctrine problems. Certainly, if a staff has not trained to develop COA it will not produce a single detailed COA, much less multiple COA. However, by studying both chapter five and Annex E of FM 101-5, it appears that there is not enough guidance to direct a staff to develop COA in detail. The manual provides guidance for the development of detailed COA by stating that COA may be stated in broad or detailed terms and the amount of detail is determined by the commander. Additionally, the manual describes the minimum amount of detail as that which can distinguish one COA from another, for purposes of analysis.

The second step of the commander's estimate, COA analysis contains both wargaming and COA comparison. Within FM 101-5 this step is only addressed in Annex E (estimates). Unlike COA development, a process is described to conduct wargaming. The process is characterized by the visualization of the battle from beginning to end by steps of a friendly action followed by an enemy action. The wargaming process begins with the commander's assessment of enemy and friendly capabilities and then the wargame of

friendly COA against enemy COA to determine results, adjust the friendly COA, and provide detail to the plan. The wargame sequence follows the following steps:

1. Comparison of enemy and friendly combat power at the point of contact.
2. Visualization of unit movement.
3. Visualization of enemy reaction and friendly counteraction.
4. Visualization of critical areas and incidents noting advantages and disadvantages.
5. Adjustment to COA.
6. Repeat the process until the mission is accomplished.

Unit performance was compared to doctrine by answering three questions:

1. Did the staff wargame the COA?
2. Was the wargame adequate to develop a plan with contingencies?
3. Was the commander involved in wargaming?

The results of the collection were that the staff did not wargame COAs 71% of the time. Of the times that the staff did wargame the commander was with them 75% of the time. The results also showed that when the staff, or commander and staff wargamed they were only effective 25% of the time.

Combining these results indicates that there is a problem with unit performance during wargaming that can be

attributed to either training, or doctrine, or both. The fact that staffs wargame only 29% of the time indicates they are not trained to wargame or intentionally neglect wargaming because of available time. There are two facts that support the assumption that staffs are not trained to wargame. The first is that only 7% of the wargames conducted were considered effective. If staffs were better trained, the amount would be higher. The second is that observations describe wargaming with much of the staff absent or with only a few specific staff officers involved.

There are several facts that indicate a doctrinal problem exists even though doctrine provides a wargaming process. The results of the number of effective wargames observed, 7% indicates that commanders and staffs may not understand the wargaming process. The description of the steps of the process state that it is the commander's visualization. For example, the commander visualizes combat power to compare against the enemy. Likewise, the commander visualizes unit movement. The wargame description leads the commander to believe it is a mental process rather than an actual exercise of employing friendly forces against enemy forces employed by the unit S-2.

The impression that commanders may believe that the wargaming process is substantiated by comments made by a precommand course instructor at the U.S. Army Infantry Center (USAIC). When asked how potential commanders

developed and wargamed their COA, his answer was that many told them it was a "gut feeling."⁵ This meant that their plan was the result of experience rather than the commander's estimate.

The fact that COAs and plans observed during the take home package study lack detail also would indicate that sufficient detail is not produced during the wargame.

Doctrine states in COA development that "during his analysis of courses of action the estimator may add details, make revisions, and fully develop the COA." However, there is nothing in the wargaming process that would instruct the commander to use the entire staff to develop detail and synchronize the plan.

The fact that observations indicate that the staff was not integrated or entirely involved in the wargame is also a problem with doctrine. Although the lack of staff participation may be a training problem, it has its origin in doctrine. The commander's estimate or any of the staff estimates in Annex E, do not describe the staff officer's responsibility to participate in the wargame. The commander's estimate only accounts for the commander's role while the other staff estimates neglect wargaming entirely.

Therefore, unit performance problems during wargaming can be attributed to training and doctrine. Although doctrine provides a sequential process to wargame, it neglects to involve the staff in aiding the commander in

providing detail and synchronization. Doctrine also fails causing commanders to believe that the wargame is a visualization rather than an exercise against an uncooperative enemy performed by the S-2.

The final question on wargaming was whether the commander was involved with the wargame. The amount of observations that mentioned the commander remaining with the staff was very small and could demonstrate a single unit's technique. All described that the commander remained with the staff when he felt time was limited. When the commander did remain to wargame, only a few of the staff remained to assist him, usually the S-3, S-2 and fire support officer.

The results of the take home package collection are supported by similar studies. The 1988 field surveys conducted by CALL indicate that of the two rotations that observed wargaming one reported that the staff wargamed 37% of the time, while during the second rotation this was accomplished 60% of the time. In the case of the second rotation, with the 60% result, one of the three battalions wargamed each time it planned which skewed the total figure. Without this unit's performance considered, the overall percentage would fall to 33%, a figure closer to the other rotations observed.

The second step of COA analysis, comparison of COA, is described in Annex E of FM 101-5. The comparison step is described using two methods, both with decision tables

(matrices). First by identifying and comparing the advantages and disadvantages of each COA to select the COA that will be successful and most advantageous to the unit. The second method identifies the advantages and disadvantages, but compares the COA against significant factors such as the criteria for selection. The significant factors used in the example are terrain, time, weather, supporting attack, but the text indicates that these are unique to the situation.

The collection instrument used one question to determine if the comparison step was conducted by staffs. The result was that there was one positive and one negative observation that answered the question. The amount of observations was considered to be insufficient to determine if the staff compared COA. However, since only 45% of the staffs observed developed multiple COA, we can determine that less than half the staffs can accomplish this step.

Commander's Estimate and Decision
Commander's Concept

In this step the focus is on the commander's decision and concept since the majority of the commander's estimate, COA development and COA analysis was discussed in the staff estimate step. Doctrine thoroughly describes this step in FM 101-5 in both chapter five and Annex E. FM 101-5 states that after the commander decides on the COA he provides the staff his concept. The concept is the commander's

visualization of the operation from start to completion, designating who conducts each portion of the operation and containing the following:

1. Task organization
2. Control measures
3. Employment of major maneuver elements
4. Command and control arrangements
5. Considerations of deep, close, and rear area battle
6. A scheme of fires to support maneuver
7. Mission-oriented protective posture
8. Rear area combat operations responsibilities
9. Contingency plans
10. Employment and use of reserves, air defense, smoke, engineers, attack helicopters, and offensive air support.

The commander also provides the staff guidance to develop the plan or remains with them to develop the plan based on his concept.

There were three questions in the collection instrument that focused on unit performance during this step:

1. Was a concept developed by the commander?
2. Was the commander's concept in detail?
3. Was the commander's concept effective?

The first question was used to determine if commanders

provided the staff a concept, while the second question was to determine how detailed the commander was when he provided the concept. The third question was used to decide if the observer/controller evaluated the concept.

The results of the collection were that 100% of the observations identified that commanders developed and stated a concept of operations. However, an equal number of observations stated that the concepts were not in detail. The third question on effectiveness did not have sufficient observations to determine concept effectiveness. The three observations that did address effectiveness stated that the task organization was incorrect for the mission.

There were several other observations that supported the indication that the commander's concept lacked detail. These observations all described the failure of the staff or commander and staff to develop the plan through wargaming. The impression from other observations is that if the commander altered a COA, than the staff did not return to wargaming as a step to develop the detail in the plan.

Since doctrine provides a description as to what a commander is to provide in his concept, a preliminary assumption is that providing sufficient detail is a training problem. However, the questions and results in the collection instrument on COA development and concept of operation are similar. This indicates that there is a connection to the problems experienced in COA development.

The connection being that staffs have a problem developing detail in COAs, augmenting the detail during wargaming and then commanders have the identical problem with detail in their concept.

Two of the questions concentrating on COA development were whether a COA was developed and if COAs were developed effectively. The results indicated that at least one COA was developed, but that none were effective. The measure of effectiveness is not identified in the observations; however, additional observations commented on the lack of detail in the COA. Even though FM 101-5 states that the COA can be described in general terms and the detail produced in the wargame, observations continue to cite that the detail is not provided.

The finding is that although doctrine provides the information to develop a concept of operation, it provides insufficient information on developing detail. Commanders omit the detail in their concept required to fully develop the plan. A topic that will be discussed in the analysis of the supervision step is that detail begins to develop during the rehearsal. The reason for this is that the detail of the plan does not exist and as subordinates begin to rehearse and question the plan. The answers then begin to add the detail that should have been developed earlier.

Preparation of Plans and Orders

During this step the commander and staff complete the plan developing a synchronized, viable, and timely plan organized into the five-paragraph operations order (OPORD).⁶

FM 101-5 states that "the procedure for planning, coordinating, and issuing orders invariably requires some compromise between the necessity for speed and responsiveness and the need for orderly procedure and detailed planning."⁷ It also asserts that the commander decides on the amount of detail in the plan and order.

The collection instrument for this step concentrated on four questions:

1. Was a written plan developed?
2. Was an oral plan provided?
3. Was the plan detailed?
4. Was the staff involved and integrated in the development of the plan?

There was not sufficient observations to determine results for the first two questions. However, as reported previously, all observations stated that plans were produced without detail. This could be the result of commanders and staffs adhering to the doctrinal guidance for time critical situations by providing limited detail. Or more probable, given results of COA development and wargaming, it is the result that the commander and staff failed to develop detail earlier.

The results from the fourth question confirm this finding in that the staff does not assist the commander correctly in developing the plan. The fourth question asked if the staff was involved and integrated in the development of the plan. All the observations used to answer the question were negative indicating that most of the staff was not involved. Even when the staff was collected together they were not involved in the synchronization and development of the plan. Observations indicated that routinely commanders had selected staff members assist them in producing the plan or sometimes the commanders were not involved.

The observations on detail and staff involvement are mutually supporting. They conclude that the entire staff is not involved in producing the plan and that the plan is incomplete. Observations explained that the lack of detail included integration of fire support, obstacle breaching, command and control and graphic control measures. These topics highlight the battlefield operating system, indicating that the commander and staff did not address that system or the staff officer responsible for the system was not involved. Therefore, the lack of detail in the plan can be the result of the commander's decision to limit detail, but is probably the result of limited staff involvement.

Doctrine states that "the decision-making process permits full coordination by the commander and staff;

development of staff estimates; and preparation of synchronized, detailed orders.⁸ It also states that in time critical situations "the commander may have to proceed through the decision-making process and issue oral orders based on his own knowledge of the situation without taking the time required to formally include the staff in the process."⁹ This guidance leads commanders to believe that the staff is involved during the formal military decision-making process and that when time is critical portions of the staff may be absent. Although, doctrine recognizes that the commander can limit the detail of the plan, it does not suggest that he exclude members of the staff during development. Doctrine implies that the commander informally include the staff: it just doesn't define how.

Issuance of Plans / Orders

Issuance of plans or orders is the eighth step of the military decision-making process. It is surmised that at this point the commander and staff provide subordinates with all the information necessary to execute the plan. Doctrine is ambiguous in its description of what is to happen during this step. FM 101-5 does not address this step in either chapter five (decision-making) or chapter six (plans and planning). It is also omitted in Annex C (military briefings and conferences). Although FM 7-20 The Infantry

Battalion provides information on enhancements that improve the OPORD briefing there is no guidance as to what occurs during this step.

The collection instrument for the thesis only focused on whether sufficient information was provided during the OPORD briefing. Although there was only one question for this step, there were two types of observations. The first answered the question of whether there was sufficient information provided during the briefing, while the second type was on enhancements to the briefing.

The observations that answered the collection instrument question were all negative, citing deficiencies with the OPORD briefing. Most observations described errors between the written OPORD and the briefing or lack of detail. Observations on errors described changes in the briefing that were not added to the written OPORD. While deficiencies described portions of the order (fire support plan, combat service support plan) that were omitted because they were not developed. This indicates that the fire support and combat service support plans were not developed by the commander and staff during wargaming and preparation of orders.

The observations in the category of providing sufficient information demonstrate that commanders are deciding to brief the OPORD before it is completed. This could be because they don't know the order is not completed

or it is a conscious decision, possibly to satisfy the one-third time guidance. Indications from other observations are that the latter is probably true. One observation stated the staff briefed the order and then continued planning after the briefing to add the necessary detail.

Another reason that conveys that commanders may brief the order before completion is that they may perceive it as doctrinal guidance. Within doctrine the troop leading procedures prescribe a tentative plan be developed and issued as a fragmentary order (FRAGO). Later when the plan is completed the order is briefed in greater detail. Also, the proposed abbreviated decision-making process in FM 7-20 identifies a technique of providing an initial order and then a confirmatory order after the plan has been developed. Commanders may be using these procedures in doctrine as the means to provide information to subordinates as early as possible and accomplish the one-third time guidance.

There was a second category of observations that were not related to the collection instrument question, but were found frequently in the take home packages. These observations addressed enhancements to the OPORD briefing. The majority of them were positive describing the successful use of enlarged graphics and sketches to explain the order in detail. Some observations also described the absence of

these tools and how difficult it was for all subordinates to get an appreciation for the detail of the plan.

Supervision

Supervision is the final step of the military decision-making process. It is described in different degrees in doctrine. FM 101-5 only mentions supervision briefly in chapter five (decision-making), stating that supervision of the preparation of plans and execution of orders is a continuous action.¹⁰ However, it does identify rehearsals in chapter six (plans and planning), not as a task to be conducted during supervision, but as the final step of the planning sequence. There is no connection between the contents in both chapters; however, they can be linked by step eight (supervise and refine) of the troop leading procedures. FM 101-5 states that rehearsals provide for timely cancellation, revision, or refinement of plans. Therefore, if rehearsals provide for revision and refinement of the plan, then the conduct of rehearsals should be a task within supervision.

A more descriptive document is FM 7-20 which addresses supervision in relation to the troop leading procedures. It reiterates the comment that supervision is continuous, but then identifies tasks that are conducted within supervision: briefbacks and rehearsals, inspections,

and coordination. This section of the manual provides clarity to the vague explanation in FM 101-5.

The collection instrument for this step focused on five questions:

1. Did the commander conduct briefbacks/backbriefs?
2. Was the briefback/backbrief effective?
3. Did the commander conduct rehearsals?
4. Was the rehearsal effective?
5. Did the commander and staff continue to refine the order during or after the rehearsals?

Observations on whether briefbacks and rehearsals were conducted were counted to determine whether units were performing these tasks. While observations citing perception by subordinates or conduct of the task by the staff were counted for effectiveness. The final question on refinement included only observations that addressed an attempt by the commander and staff to make improvements to the plan as a result of the rehearsal.

There was a large population of observations concerning all aspects of supervision indicating that this was an important subject in unit performance. Of the observations involving briefbacks 88% were positive indicating that the majority of units were conducting briefbacks. However, of those units that conducted briefbacks, observations specified that only 25% were effective.

The negative comments concerning briefbacks focused on structure. The problem with the briefbacks was that they lacked a planned structure. Rather than the commander and subordinate commanders following a known agenda, with subordinates telling the commander what they believed their mission was and how they planned to accomplish it, the group only discussed the operation. There were observations stating that the briefback concluded with subordinate commanders still confused and issues still to be resolved, but this was the result of poor structure.

There are two types of briefbacks between the commander and subordinate commanders. The first ensures that subordinate commanders understand their mission and critical actions, occurring shortly after the OPORD briefing. The second occurs after the subordinate commanders have had time to develop their concept of the operation, but before they have issued their OPORD. The second briefback allows the commander to ensure that subordinate commander concepts are correct and to make any necessary corrections.¹¹ The observations rarely distinguish between the two types, but those observations answering the question of effectiveness cited that there was confusion at the end of the briefback.

Results from the collection of observations on rehearsals was similar to that of briefbacks. The results demonstrated that 65% of units conducted some type of

rehearsal; however, only 34% of those conducted were considered effective. Therefore, only 22% of the observations indicated that units conducted effective rehearsals.

The observations describing what occurred during rehearsals indicates the problem with effectiveness. Similar to briefbacks there was no structure, commanders and subordinates gathered in an attempt to rehearse, but the rehearsal deteriorated into discussion. The commander did not control the subordinate players acting out their tasks in accordance with the execution paragraph, synchronization matrix, or execution matrix of the OPORD. The rehearsal changed to a discussion when questions were asked on details of the operation. If the details were not developed during the COA development or wargame, the commander and staff attempted to answer by figuring out the solution during rehearsal. This resulted with a wargame of the problem to determine an answer distracting the commander and staff from the rehearsal.

One observation noted the ineffectiveness of a rehearsal by the description of all the questions asked to the S-3 or executive officer (XO). At the end of the rehearsal the commander asked for questions, few subordinates responded. However, as everyone began to leave subordinate commanders surrounded the S-3 and XO questioning

them on specific problems. This clearly displayed that there was still some confusion about the plan.

Other problems with rehearsals were that all players were not represented. In some cases subordinate commanders were missing, but more frequently combat service support (CSS) representatives were missing. The rehearsals that were conducted were frequently oriented on rehearsing the maneuver and fire support portion of the operation. Though most battlefield operating systems were represented, CSS was usually left out. In a few cases the S-4 conducted separate CSS rehearsals to augment the maneuver rehearsal, but this was rare.

There were only four observations concerning whether refinements to the order were made after the rehearsal, two positive and two negative. This is not a significant amount of observations to determine a weakness in performance. However, FM 101-5 does mention that supervision is continuous and that plans and orders are constantly refined. Therefore, the lack of units refining orders after rehearsals is the result of ability not doctrinal guidance.

The findings from the research of unit performance identifies which steps commanders and staffs have difficulty with while conducting the military decision-making process. Unit performance together with the review of doctrine also indicates where doctrine is successful in its guidance or where it has gaps. What the analysis displays is that

commanders and staffs habitually omit or fail to restate the mission, provide commanders guidance, develop a time plan, develop detailed COA, wargame, develop a detailed concept, develop a detailed plan, issue a precise order, and conduct briefbacks and rehearsals effectively. When these tasks are not conducted or done poorly the result is an ineffective plan for combat.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this thesis was to assist battalion and brigade commanders and their staffs make rapid decisions in time critical situations. This was to be accomplished by determining if Army doctrine for command and control (FM 101-5 Staff Organization and Operations) should develop and prescribe an abbreviated military decision-making process for battalions and brigades. The results of this study conclude the following:

1. Command and control doctrine needs to provide an abbreviated decision-making process in greater detail than that provided in FM 101-5.
2. Commanders and their staffs abbreviate the military decision-making process, in time critical situations, by eliminating steps of the doctrinal process.
3. The doctrinal military decision-making process is a suitable model to make decisions rapidly.

Conclusion One

Command and control doctrine needs to provide an abbreviated decision-making process in greater detail than

that provided in FM 101-5. The military decision-making process described in doctrine is practical for commanders and their staffs to make tactical decisions when time is available. However, based on the amount of units that meet the one-third time guidance, (45% to 83%) and accomplish the mission (24% to 38%) at the National Training Center (NTC) it appears that it is impractical for rapid decisions during combat. The data demonstrates that units can plan quickly; however, they do not provide the necessary detail to accomplish the mission. Therefore, an abbreviated military decision-making process is necessary.

Doctrine provides an abbreviated military decision-making process; however, it does not provide detailed guidance or techniques on how to conduct the process described. The result is that commanders and staffs interpret doctrine and abbreviate the decision-making process as best they can, often eliminating essential steps. Steps such as course of action (COA) development, and wargaming that provide the detail to accomplish the mission.

What commanders and their staffs require is a decision-making process that is quick enough to provide their subordinates the majority of the available time and simple enough to conduct with their staff. This process is not provided by doctrine in detail, but some of the techniques to develop a process do exist in both doctrinal and non-doctrinal publications. An abbreviated process can

be produced by focusing on the steps of the deliberate process that are omitted or difficult for commanders and their staffs to conduct.

Recommendation

To solve this problem doctrine must provide a detailed abbreviated military decision-making process. The abbreviated process would not eliminate steps from the doctrinal process, but would guide the commander and staff on how to shorten the steps of the process, making it faster.

The abbreviated military decision-making process that is described in Appendix 1 will not change the ten step process displayed in FM 101-5, but will provide techniques to speed each step. It is a compilation of techniques from FM 7-20, The Infantry Battalion, ST 100-9, The Command Estimate Process and the combat training centers (CTC). The abbreviated process concentrates on correcting the problems found in conducting mission analysis, providing commander's guidance, developing a time plan, developing COA, wargaming, developing a detailed concept, developing and issuing a precise order, and supervising the plan.

Conclusion Two

Commanders and their staffs abbreviate the military decision-making process, in time critical situations, by

eliminating steps of the doctrinal process. Findings from the research of NTC take home packages, rotation executive summaries and field surveys indicate the following steps in the military decision-making process are partially conducted or omitted:

1. Mission analysis is partially conducted, with only 18% of commanders providing adequate planning guidance and only 16% of the commanders and staffs producing effective time plans.
2. Within the commander's estimate, COA are not developed in detail, only 29% of the units wargamed and only 7% wargamed effectively. Additionally, the commander's concept of the operation did not have the necessary detail.
3. Because of the lack of detail provided in the above steps operations orders do not have sufficient detail.
4. During supervision only 25% of the briefbacks and 34% of the rehearsals are effective.

These findings provide a picture of how the commander and staff abbreviate the military decision-making process. The reasons for partial completion or omission of these steps is that doctrine does not completely provide the information to conduct these steps. FM 101-5 does not have sufficient information on planning guidance, time planning, COA development, wargaming, or supervision. While FM 7-20

and ST 100-9 have the information but it is not standardized between the publications. For example, the methods to develop COA between the publications are different while there are some differences in other steps.

Recommendation

To solve the problems commanders and staffs have conducting the military decision-making process, FM 101-5 must provide detailed techniques to conduct each step of the process. This is necessary for both the deliberate process and the abbreviated process. The techniques provided must be standardized in all doctrinal manuals so that commanders and staff officers from all branches can plan together using the same methods. The techniques provided in Appendix 1 are examples of what should be used by doctrine.

Conclusion Three

The doctrinal military decision-making process is a suitable model to make decisions rapidly. Research conducted by the Army Research Institute (ARI) after Operations DESERT SHIELD and DESERT STORM found that 84% of combat arms, combat support and combat service support commanders and staffs believed that the doctrinal decision-making process was adequate to plan. The research of the NTC take home packages demonstrate the majority of

commanders and staffs attempt to conduct the military decision-making process; however, they do not conduct each step correctly.

The military decision-making process has been used by the U.S. Army since 1910 when the estimate of the situation was introduced in the 1910 Army Field Service Regulation.¹ Commanders and staffs are familiar with the process as a result of their military education and training, even though they may not know how to conduct it correctly. With improvements to doctrine, as described in the first two recommendations, commanders and staffs can continue to use the military decision-making process, but more effectively.

Recommendation

Retain the military decision-making process in doctrine. Improve it by adding techniques as described in Appendix 1.

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APPENDIX A
ABBREVIATED DECISION-MAKING PROCESS

The abbreviated military decision-making process described was developed by taking techniques from FM 7-20, The Infantry Battalion, ST 100-9, The Command Estimate Process and the combat training centers (CTC). The techniques from the CTCs were collected during personal training or observation of other units training at the CTCs. However, some are also described in unit rotation take home packages.

The abbreviated process speeds the deliberate military decision-making process by providing commanders and their staffs techniques to conduct specific steps. The steps identified are those that appeared to cause the greatest problems to commanders and staffs as they made decisions in time critical situations. It concentrates on mission analysis, staff estimates/commander's estimate, and supervision.

Although many of the steps describe a staff officer responsible for conducting the step the commander should not leave the staff to plan on their own. It benefits the commander to remain during planning so that he can influence the detail of the plan. This helps ensure that the staff

need not plan, and then waiting to get the commander's approval before continuing. With the commander remaining with the staff, the decision-making process is conducted faster by eliminating the time spent on seeking approval on portions of the plan.

Mission Analysis

Once the operations order is received, the staff begins analyzing the unit's mission. If the staff does not attend the higher commander's order, it must read the order to determine the specified, implied and mission essential tasks. If the order is sent to the tactical operations center (TOC), the portions of the order and annexes are distributed to each staff officer that applies to their battlefield operating system (BOS).

Once the staff is assembled and has analyzed the mission, the specified, implied and mission essential tasks are listed. In addition, all staff officers address the assets available, constraints, and restrictions within their BOS. The staff then analyzes the intent and mission of the commanders two echelons higher. Time is analyzed and a planning and an initial preparation timeline is developed so that the commander and staff know the decision cycle.

When all the information is collected, the staff drafts a restated mission statement and presents it to the

commander. The commander then accepts or changes the mission statement which becomes paragraph 2 in the operation order.

Commander's Planning Guidance

One of the steps that will speed succeeding steps is Commander's planning guidance. The commander, aware of the time available for the decision-making process, focuses the staff by providing specific planning guidance. This provides an initial course of action (COA), and addresses each BOS. The commander states how he envisions the employment of organic and attached units, and identifies priority intelligence requirements (PIR).

A technique the commander uses to provide his planning guidance is to sketch the initial COA graphics. The commander shows the staff how to shape the battlefield and leaves the sketch on the planning map to refresh their memory during planning. In addition, the commander addresses what he wants the main and supporting effort to accomplish as well as the results he desires.

After the COA sketch is completed, the commander organizes the remaining planning guidance by addressing each BOS. For example, guidance on the use of engineer assets addresses how the commander wants to shape the battlefield using obstacles.

A common mistake occurs when commanders provide planning guidance and then depart, believing that the staff understands all his guidance. To solve this problem the commander has the staff back brief him on his guidance to ensure they understand what he is telling them to do. The back brief aids the commander in communicating his planning guidance.

By focusing the staff the commander enables them to develop quick and feasible COA that he will select from. If he does not provide clear guidance and an initial COA the staff will develop and recommend COA that the commander will not select. This results in the commander developing his own COA, which the staff must wargame later, wasting time.

Time Management

A significant problem commanders and staffs face during decision making is time management. Although time is very valuable, it is often wasted by poor management, leaving little time for effective preparation. To solve this problem commanders and staffs must organize, plan and adhere to structured time tables.

Even though time analysis is included in mission analysis, the detail is often neglected. Without a detailed time analysis staffs often skip or spend insufficient time on important planning steps, while spending too much time on others. Time analysis by many staffs is nothing more than

determining one-third of the available time for planning. However, by determining the amount of time necessary for situation updates, mission analysis, estimates, orders preparation, orders brief, rehearsals and preparation, a detailed time plan is developed, ensuring that preparation receives the majority of the unit's time.

A technique to manage time is to develop a planning and preparation timeline. The timeline lists the available time the unit has, beginning when the unit receives the mission and ending when the unit executes the mission. The planning and preparation timeline lists all the tasks the commander and staff will conduct or need to keep track of.

To develop a planning and preparation timeline the commander and staff need to know how long each planning task takes to conduct. Beginning with receipt of the mission, an initial timeline is developed, identifying the times for known events using the reverse planning sequence. The timeline identifies the mission receipt time, mission execution time, one-third time point, and light data on a butcher chart so the list is seen by the staff.

The timeline is continuously developed by identifying the expected time the staff will assemble to prepare their situation updates, analyze the mission, and brief the commander. Once the commander restates the mission and gives his guidance, he determines when the COA decision brief will be given. The executive officer (XO) then

determines how much time the staff will spend on COA analysis and wargaming. As these events are placed on the timeline, the XO allocates time for each step. By doing this the staff knows the amount of time available to develop portions of their estimates, before joining the remainder of the staff for COA analysis.

While the order is being developed, the S-3 identifies tasks that need to be accomplished during preparation. These tasks are added to the timeline with the responsible person or organization so that the TOC can track the status of the task. By adding preparation tasks to the timeline, the commander and staff can synchronize the preparation effort. Figure 2 is an example of a timeline for a heavy task force during a defense mission.

PLANNING/PREPAREDNESS TIMELINE (TASK FORCE DEFENSE)

<u>TIME</u>	<u>EVENT</u>	<u>RESPONSIBILITY</u>
091030	Received Mission	
091045	Situation Update Brief	Staff
091050	Initial Warning Order Sent	S-3
091100	Mission Analysis	Staff
091130	Receive CDR's Planning Guidance	Commander
	Send 2D Warning Order	S-3
091200	Develop Estimates and Wargame	Staff
091300	COA Analysis	Staff
091330	COA Decision Brief	CDR and Staff
	Detailed Wargame with CDR	CDR and Staff
	Develop Decision Support Template	CDR and Staff
091350	3D Warning Order Sent	S-3
091400	Begin Prepositioning of CL V Order Preparation	S-4 Company COs Staff
091530	Reproduction Begins	Operations NCO
091630	Operation Order Brief	CDR and Staff
091800	Back Brief to Commander	Company COs
091930	1/3 Available Time	
100700	Emplace Task Force Target Reference Points (TRP)	S-3
100800	Brief Back to Commander	Company COs
100900	Rehearsal	CDR/S-3
101100	Status of Obstacle Plan to Commander	Engineer LNO
101400	Status of Survivability Positions	Engineer LNO
102000	Heat all TRPs	S-3
102030	Sun Down	
102115	End Evening Nautical Twilight (EENT)	
102330	NET Call (All Leaders on Command NET)	TOC
NLT110001	DEFEND IN SECTOR	
110430	Intelligence Update	S-2
110515	Beginning Morning Nautical Twilight (BMNT)	
110545	Sun Rise	

Figure 2

Staff Estimates and Commander's Decision

During the estimate process steps commonly neglected or done incorrectly are COA development and wargaming. Each step is important in the development of a plan and cannot be eliminated or done poorly to save time. The staff owes the commander its best estimate of the situation during the decision brief.

An inferior estimate impacts on the remainder of the military decision-making process in the following ways. The commander, recognizing COA that do not adhere to his planning guidance or are not feasible, responds by having the staff do the work again. Or in the absence of time develops a COA himself. When COA are not analyzed, the staff develops a potentially infeasible plan. The staff later realizes this, as the plan is developed, and is forced to change the plan, often in the commander's absence. When the staff neglects to wargame and develops a plan without consideration of the enemy's actions or reactions, it develops a plan which will fail quickly. Plans that do not properly consider the enemy are identified during rehearsals when someone asks, "what if the enemy does this?" The staff is then forced to correct the mistake, resulting in wasted time.

Course of Action Development

One of the most difficult tasks for the S-3 is the development of COA when time is short. If the commander does not provide specific planning guidance with COA to consider, the task is even more difficult. There are different methods to develop COA; however, an effective and quick procedure must be used to develop multiple COA under a time constraint.

To develop feasible COA the S-3 must first understand the current intelligence preparation of the battlefield (IPB) and restated mission statement. The IPB identifies the assumed disposition of the enemy (situation template), while the mission statement identifies the task and purpose of the unit. Together with the commander's planning guidance, both provide a focus for determining how to accomplish the mission. If the mission were to attack at H-hour to clear an objective to protect the flank of an adjacent unit, the S-3 focuses on how to accomplish the task, clear the objective.

Determine the Decisive Point and Time

To develop COA the commander must have identified the decisive point and time to the staff. The decisive point is usually geographical in nature, retention of which provides a commander with a marked advantage over his opponent. Decisive points could also include other physical

elements such as enemy formations, command posts, and communications nodes.¹ The main effort is committed to accomplishing the task at the decisive point. For example, the decisive point in the defense is the engagement area that the commander intends to destroy the enemy.

The decisive time is when the commander begins to accomplish the task at the decisive point. Though different for every mission, the decisive time will be on or near the objective for offensive missions and within the selected engagement area for defensive missions. For example, the decisive time in a defense might occur when the enemy has entered the engagement area and the unit masses its firepower to destroy him.

Identify the Task and Purpose of the Main Effort

Once the decisive point is identified, the S-3 determines the task and purpose of the main effort. For example, using the mission example of attack to clear an objective, the S-3 identifies a flank platoon within a motorized rifle company (MRC) defense as the decisive point. The main effort's initial task is to destroy the enemy platoon. The purpose is to provide space for the remainder of the task force to move onto and clear the objective.

When identifying the purpose for the main effort, the S-3 also ensures the main effort has sufficient combat power to succeed in their task. To determine the type of force

for the main effort, the S-3 analyzes relative combat power (the amount of enemy combat power compared to amount of friendly combat power). He does this by using IPB to determine the type and number of enemy weapon systems the main effort must fight. Then friendly assets required to defeat the enemy are allocated to the main effort. The amount of assets is determined by historical planning ratio required for the operation. For example, in an attack a 6:1 friendly against enemy ratio is desired. While the type of asset is a result of the unit's task organization.

During a deliberate attack, a battalion S-3 identifies a motorized rifle platoon (MRP) on the enemy's flank as the point he wants to commit the main effort. The S-3 knows the MRP is organized with one T-72 and three BMPs, and the necessary ratio for an attack against enemy in prepared positions is 6:1 (historical planning ratio for attack against prepared defense). He determines he must allocate at least twenty-four weapon systems that can kill tanks and BMPs. The S-3 then organizes the main effort with sufficient tank platoons to provide enough combat power to destroy the defending platoon.

Determine the Tasks and Purposes of Subordinate Units

The S-3 determines the tasks and purposes of the subordinate units. First, he identifies tasks to support the main effort. To attack by fire to suppress adjacent

enemy platoons, or breach an obstacle are examples of tasks supporting the main effort. At this point he does not identify the type unit that will be in support of the main effort. He does this later when determining command and control headquarters.

A simple method of identifying the tasks for subordinate units is to start at the decisive point. In the defense, start at the decisive point then work toward the point of enemy contact. For the offense, begin at the decisive point and work back to the line of departure. This method may not identify all supporting unit tasks; however, the remainder are identified during wargaming. Yet it does provide those that are necessary for mission accomplishment.

While the S-3 identifies tasks to support the main effort he also determines the purpose for the supporting units. The purpose will provide the subordinate unit commander the reason why the task must be accomplished. The purpose will assist the subordinate commander in restating his mission and understanding the commander's intent. Purposes for the previous examples would be attack by fire to suppress adjacent MRPs so they do not hinder the main effort. Or breach an obstacle, to allow the main effort to assault the objective.

Allocate Assets to the Main Effort and Subordinate Units

The S-3 allocates assets to the main effort and support units to accomplish their tasks. To do this correctly, he first arrays units two echelons down. For a battalion, the S-3 will array platoons, while a brigade S-3 will array companies. He then determines the historical planning ratio for the type of operation. For a defense the S-3 plans for a one (friendly) to three (enemy) ratio, while in the offense he plans a six to one ratio.

The S-3 reviews the task and purpose of the main effort and assigns the sufficient amount of assets (platoons or companies) to allow them to defeat the enemy. The S-3 then weights the main effort with other combined arms assets. For example, he might task organize a company team with engineers, air defense, and anti-tank platoons to ensure it can destroy the enemy on the objective. Typically provide a commander no fewer than two and no more than five maneuver units to provide a manageable span of control.

Assign Command and Control Headquarters

The S-3 continues assigning assets for all the supporting tasks as he did for the main effort. Once finished, he has an idea of the task organization required to accomplish the mission. He identifies the command and control headquarters for each task. However, he does not identify specific units for a task unless the unit is

organized with specific equipment for that type of task.

The commander determines which unit is designated as the main effort and which are in support.

Draft minimum control measures

The S-3 drafts the minimum graphic control measures necessary to display the scheme of maneuver. The control measures demonstrate how subordinate units are controlled, yet provides them sufficient freedom of action to perform mission type orders within the commander's intent. For example, in the offense the S-3 places objectives, attack by fire positions, axis of advance, zone of action, and phase lines. While in the defense he places sectors, battle positions, engagement areas, and phase lines. Additional graphic control measures detailing the plan are added during wargaming and when the commander and staff develop the plan.

Develop Course of Action Sketch and Statement

Preparing the COA sketch, to present to the staff and later to the commander, is the final step in COA development. The sketch contains the minimum control measures to explain the scheme of maneuver. The statement is the explanation of the COA from the beginning of the operation to mission completion. The S-3 has a possible COA when he completes this step and then repeats the procedure until he develops the amount demanded by the commander.

Wargaming

The step most frequently eliminated or poorly conducted by battalion and brigade staffs, during the estimate process, is wargaming. Observations indicate that few staffs understand how to wargame, and many staff officers are not involved in the procedure. Omission of this step is evident when the unit rehearses the plan and is alerted to an enemy action the staff had not considered.

Wargaming is a valuable step within the decision making process. It forces the staff to take a COA and add detail to the plan. Additionally, the plan is synchronized when the entire staff wargames. Information recorded during wargaming provides the information for the development of paragraph three (execution) of the operations order, the execution or synchronization matrices, and the decision support template. Because of the importance of its results, and the time it requires, more time is allocated than for any other step. This is considered when developing the planning and preparation timeline.

Wargaming is a time consuming process, but can be accomplished quickly if the entire staff is involved and it follows the wargaming sequence. An effective technique is to follow the steps in the following sequence.

Gather the Tools

While the staff works on their estimates, the tools necessary for wargaming by gathered. The first tool required is a planning map or sketch of the area of operations. An enlarged map or sketch is best so the entire staff sees the COA. Post the situation template for the selected enemy COA and friendly unit dispositions on the map, then cover the map with acetate. Then sketch the COA on the acetate and revise it during wargaming.

Two methods to develop an enlargement of the area of operations are to have an assistant sketch the significant terrain by free-hand. Then add the situation template and cover the sketch with acetate. An easier, yet resource dependent method, is to make a transparent slide of the area of operation then project it onto butcher paper. The assistant traces the significant terrain to provide a terrain enlargement. The enlargements are also useful later when briefing the operations order. Displaying details of the operation order using terrain enlargements is more effective than using a 1:50000 scale map.

List all Friendly Forces and Combat Power Multipliers

The staff participation in the wargame begins with this step. The staff is assembled to provide their tactical and technical expertise. The S-3 lists the friendly forces available, identified during mission analysis. The staff

assists him in listing all combat, combat support, and combat service support units that are organic, attached, and operationally controlled by the battalion or brigade.

List the Assumptions

The S-3, with assistance from the staff, lists the assumptions necessary to help shape the COA. The assumptions provided by the staff are those identified during the development of estimates. The most significant assumption is the situation template. When the S-2 presents the situation template, he is giving the commander what he believes is the enemy COA. This is an assumption until information can be confirmed by reconnaissance.

List known Critical Events and Decision Points

The S-3 then identifies the critical events and the decision points of each COA. Critical events are essential tasks within the COA that the wargamer believes require detailed analysis. Decision points identify where the commander must decide to initiate an activity (call for fire, displace a subordinate maneuver unit, etc.) to ensure synchronized execution.

Many critical events are identified during wargaming; however, some are identified in advance. Examples of critical events that can be identified in advance for a defensive operation are reward passage of

counterreconnaissance forces, commitment of the reserve, displacement of forces, and initiation of the counterattack.

In the offense, critical events are forward passage of lines, obstacle breaching, assault on the objective, and consolidation.

Select the Wargaming Method

The S-3 selects the wargaming method based on time available and type of operation (offense or defense). There are three techniques to choose from: avenue-in-depth, belt, and box. Each technique has advantages given the type of operation.

Used when little time is available, the box technique is the easiest to use. It analyzes select critical events--those considered most important to the staff--given the available amount of time. The S-3 draws boxes around the critical events so the staff knows which will be analyzed. Each are then analyzed by the entire staff.

The avenue in depth technique focuses the staff on one avenue of approach beginning with the main effort. The technique allows the staff to wargame the battle in sequence from the assembly area to the objective during the offense and throughout the main battle area during the defense. Even though this technique can be used for both offense and defense it is suited better for the offense, because it analyzes the units movement in sequence to the objective.

The avenue in depth technique requires more time than the box as all critical events along the avenue of approach are analyzed.

The most effective technique is the belt, because it enhances synchronization by analyzing all forces that effect specific events. The S-3 divides the area of operation into belts the width of the zone or sector. The belts are constructed along established phase lines or placed adjacent to each other covering specific phases. For a more detailed analysis, the belts can overlap. The staff wargames all events within the belt simultaneously. This technique requires more time than the previous techniques, as it analyses more critical events within the area of operation.

Select a Technique to Record and Display the Results

To obtain information to compare COA the staff records the results of each COA wargamed. The easiest and quickest method is the sketch note technique. As the staff wargames a critical event an assistant writes notes about the specific actions taking place. These notes are recorded on a wargame work sheet, terrain sketch, execution or synchronization matrix.

The commander and staff wargame to visualize the battle and determine what actions can be accomplished to succeed in the mission. Time spent wargaming is valuable as it results in a detailed plan. Though this step is the most

time consuming it should never be eliminated from the decision making process. The S-3 and XO ensure that sufficient time is allocated when they analyze available planning time.

The most effective technique for wargaming is to have the entire staff participate using the S-2 as the enemy commander. Each staff officer acts as an advisor for the employment of assets within his BOS. The staff officer analyzes each critical event by determining how the tasks within the critical event occur. The staff officer visualizes how the subordinate commander would employ his forces, while he and the S-2 determine how the enemy respond to the actions of the friendly unit.

Analyzing critical events and associated tasks requires staff officers to understand the capabilities of their type of unit and equipment and like enemy units. For example a battalion engineer officer analyzing an obstacle breach (critical event), might identify reducing an obstacle as a critical task for which he is responsible. Organized with two mine clearing line charges (MICLIC) and two mine plows, he determines that an engineer company can breach two lanes through a wire and mine obstacle in approximately twelve minutes. This information provides the S-3 and fire support officer (FSO) the planning factor for the amount of smoke necessary to obscure the enemy's observation of the obstacle. It also provides the S-3 a time to decide to move

the assault element forward to the breach. Without an understanding of all the planning factors within a critical event, the staff will not provide the detail necessary to synchronize the plan.

The sequence of the wargame begins with friendly action, followed by enemy reaction, followed by friendly counteraction. The S-3 selects the technique (box, avenue in depth, or belt) and determines the starting point. If the box technique is used, the starting point is the most important critical event. If the belt or avenue in depth technique is used, the starting point is the unit location (defensive positions or assembly area).

Figure 3 is an example of the staff participating in an action-reaction-counteraction sequence using a task force attack against a MRC. This sequence is continued until the critical event is completed. This staff interaction is key to detailed planning, one staff officer cannot wargame alone.

Wargame Example

ACTION	The S-3, S-2, and FSO identify the first critical event wargamed to be the assault against the MRC. The first friendly action is suppression of the MRC with indirect fire.
REACTION	The S-2 reacts with enemy indirect fire against the task force while it moves into the firesack.
COUNTERACTION	The S-3 counteracts with a armor company moving to an attack-by-fire position to suppress a flank motorized rifle platoon.
REACTION	The S-2 reacts by shifting indirect fire to the attack-by-fire position and the main effort of the task force.
COUNTERACTION	The S-3 and FSO counteract by using counter battery fires against the enemy's artillery and electronic warfare to disrupt communications while continuing the assault against the MRC.
REACTION	As indirect fires are lifted the S-2 reacts with direct fire against the main effort as it assaults their position.

Figure 3

Supervision

After the operations order briefing, the commander conducts back briefs, brief backs, and rehearsals to ensure that subordinates understand the order. The first event is the back brief or mission brief, during which subordinates tell the commander what their mission is. The commander gives subordinates time to analyze their mission, while they are still at the order brief. Then subordinates brief him on their mission, tasks and his intent. If there are misunderstandings the commander can correct them before the subordinate commander begins planning.

The next event is the brief back or plans brief. The commander meets with all subordinate unit commanders, after they have had time to develop their plan. The subordinate commanders brief him on the details of how they will accomplish their mission. It is beneficial for the commander to meet with all his subordinate commanders together rather than one at a time, because one commander will identify a problem that will require coordination with other commanders. If everyone is at the same location the problem can be solved quickly while at the brief back.

The terms for both events (back brief/brief back) are confusing but not important. The events can be called mission brief and plans brief if that clarifies each event for subordinates. What is important is that commanders realize that both are necessary and conduct them prior to

the rehearsal. Units that are at a high level of training may conduct both events together soon after the operations order. However, it is necessary to provide subordinate commanders with adequate planning time.

The final event to emphasize and ensure subordinates understand the plan is the rehearsal. Characterized by the amount of resources required, the two best techniques to conduct rehearsals are reduced force and full force. The full force rehearsal, the most resource intensive, requires all units in the battalion or brigade, terrain similar to the area of operation, and sufficient time to drill the execution of the operation.

While the full force rehearsal requires a great deal of assets, time and terrain the reduced force rehearsal is accomplished with only the leaders of subordinate units using a terrain model. If time is not available to conduct a full force rehearsal the commander can conduct a reduced force rehearsal on a terrain model large enough for the participants to walk on.

Maneuver Rehearsal

The maneuver rehearsal is the responsibility of the commander. He leads the maneuver rehearsal with the XO, S-1, S-2, maneuver company or battalion commanders, direct support artillery battalion commander or FSO, special platoon leaders, LNOs and company fire support teams FIST

attending. To synchronize the fire support plan with the scheme of maneuver FIST chiefs attend the maneuver rehearsal with their company commanders and practice the fire support plan as commanders practice the scheme of maneuver.

To conserve time and make the rehearsal effective, the unit must train to the way they want to rehearse. A sequence for reduced force rehearsals is for the S-2 to first identify all the terrain features and graphic control measures used on the terrain model. He then describes the enemy COA depicted in the situation template. The commander organizes the remainder of the rehearsal using the execution or synchronization matrices from the order. If little time is available he focuses on the critical events used during the wargame.

The commander begins the rehearsal by having the first units involved in the first critical event or phase discuss their actions. The commander and subordinates continue describing their actions while the S-2 describes the potential enemy actions. To conserve time, the commander must control the rehearsal so that it does not develop into a discussion of other enemy actions and possible friendly COA. However, when time is available the commander rehearses actions against other enemy COA.

Staff, Logistic, and TOC Rehearsals

Though the maneuver rehearsal will be the priority for the commander the unit must also conduct a logistic rehearsal conducted by the S-4 or XO, a staff rehearsal conducted by the XO, a TOC rehearsal conducted by the S-3 or operations sergeant and fire support rehearsal conducted by the FSO. The staff and TOC rehearsals are easily done by reviewing the scheme of maneuver using the execution or synchronization matrix and the operational graphics. The XO identifies what each staff officer is responsible for during each event. While the S-3 identifies what each cell within the TOC must do or be prepared to do during the battle. For example, when the TOC must move, and what type of set up they will use at the new site.

The logistic rehearsal, conducted by the S-4 or XO, is accomplished similar to the maneuver rehearsal. The S-4/XO has the S-1, company 1st sergeants, support platoon leader, medical platoon leader, battalion motor officer attend. Using a terrain model they walk through the plan as the maneuver commanders did.

Summary

The techniques provided in the abbreviated military decision-making process do not abbreviate by elimination but by shortening each step. In some cases this is accomplished by providing a technique where one does not exist in

doctrine or other non-doctrinal publications. The abbreviated process will speed decision-making and provide detail in the plan if the commander and staff train to conduct the techniques.

ENDNOTES

Appendix A

1. U.S. Army, Field Manual 100-5 Operations, draft (Washington D.C.: Headquarters, Department of the Army, January 1993), p. glossary 3.

APPENDIX B

NATIONAL TRAINING CENTER TAKE HOME PACKAGE COLLECTION INSTRUMENT

1. Mission Received

- (a) Are units receiving orders by briefings?
- (b) Are units receiving orders by written copy?
- (c) Are units receiving orders by both?

2. Information to Commander\Staff

- (a) Does the commander and staff formally exchange information?
- (b) Does the commander have a standard list of information items to be provided by each staff officer?

3. Mission Analysis, Restated Mission and Commander's Planning Guidance

- (a) Was mission analysis conducted?
- (b) Was mission analysis conducted correctly?
- Was a restated mission provided or approved by the commander?

- (d) Did the commander provide the staff planning guidance?
- (e) Was the guidance sufficient (enough to plan and timely)?
- (f) Was a time analysis conducted?
- (g) Was the time analysis effective in planning and preparation?

4. Staff Estimates

- (a) Were courses of action (COA) developed?
- (b) Were multiple COA developed?
- (c) Was there an identifiable method in the development of COA?
- (d) Were the COA developed effectively, considered all tasks, all assets?
- (e) Did the staff wargame the COA?
- (f) Was the commander involved in wargaming?
- (g) Was the wargame adequate to develop a plan with contingencies?
- (h) Was the entire staff involved in wargaming?
- (i) Did the staff compare the COA and select one to be recommended to the commander?

5. Commander's Estimate and Decision Commander's Concept

- a. Was a concept developed by the commander?

- (b) Was the commander's concept in detail?
- (c) Was the commander's concept effective?

6. Preparation of Plans and Orders

- (a) Was a written plan developed?
- (b) Was an oral plan provided?
- (c) Was the plan detailed?
- (d) Was the staff involved and integrated in the development of the plan?

7. Issuance of Plans/Orders

(a) Did the OPORD brief provide sufficient information to subordinates?

8. Supervision

- (a) Did the commander conduct briefbacks/backbriefs?
- (b) Was the briefback/backbrief effective?
- (c) Did the commander conduct rehearsals?
- (d) Was the rehearsal effective?
- (e) Did the commander and staff continue to refine the order during or after the rehearsals?

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THE REQUIREMENT FOR AN ABBREVIATED MILITARY DECISION-MAKING PROCESS IN DOCTRINE

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

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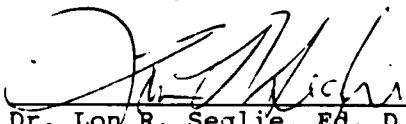
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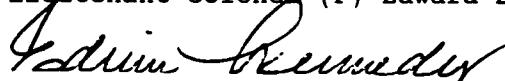
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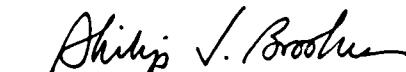
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

THE REQUIREMENT FOR AN ABBREVIATED MILITARY DECISION-MAKING PROCESS IN DOCTRINE by MAJ Jacob A. Garcia, USA, 120 pages.

This study investigates the necessity of an abbreviated military-decision making process for battalion and brigade commanders and their staffs. It examines the problem that during time critical situations commanders and staffs abbreviate the decision-making process and frequently deviate from the doctrinal method. The result is often incomplete and ineffective plans that do not accomplish the mission.

The study researches doctrinal and nondoctrinal publications to determine if an abbreviated process exists and compares the doctrinal process to unit performance at the National Training Center. It identifies that doctrine for decision-making is not standardized, with different methods described depending on the field manual. However, even with different methods, some portions of the decision making process are not addressed in sufficient detail to enable commanders and staffs to make rapid decisions.

The study identifies the steps of the military decision-making process that are omitted or poorly conducted and provides techniques to solve the problem. It then promotes the use of the military decision-making process, even during time critical situations, by abbreviating the process with techniques to speed the process.

ACKNOWLEDGEMENTS

I would like to thank the Center for Army Lessons Learned, and the Combat Training Centers for their assistance over the last three years in this and related projects. I appreciate the hospitality extended to me by observer controllers during the six rotations I observed at the National Training Center and Joint Readiness Training Center. I also want to thank the members of the committee for their guidance and patience during this study. But most of all I want to thank my family Yvonne, Erin, Chris and Grant for their understanding during this last year.

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CHAPTER 1

INTRODUCTION

We did what always is done but gets a no go at the NTC: the commander and S-3, assisted by the S2 and FSO on the fringe, built a plan and execution matrix as quickly as we could. There was only one course of action wargamed based on the Cdr and S3 having to work without an accurate intell picture and no fire plan from above. We established our scheme of maneuver based on two days experience with the enemy and our knowledge of our own strengths and weakness and used our most flexible formation that we had trained on extensively.¹

Unidentified Battalion Commander
Operation DESERT STORM

Since military organizations first evolved, commanders have been responsible for tactical decision making. Those commanders blessed with military genius, such as Napoleon or Frederick the Great, were frequently capable of making tactical decisions with minimal assistance from other military experts. However, as the complexity of warfare increased, due to the large size of forces and advances in technology, tactical decisions required more information and calculation before effective decisions could be made.

The increased demand for information and analysis in order to make decisions led to the need for assistants to aid the commander. In the United States Army, staffs

evolved organized with specialists for operations, intelligence, administration, and logistics to collect and analyze the information required by the commander. In order to assist the commander, processes were developed to organize the information necessary to arrive at and execute tactical decisions. Methods varied between nations and organizations; however, the United States Army developed and inculcated in doctrine a method referred to as the military decision-making process.

FM 101-5 Staff Organization and Operations identifies the military decision-making process as the method commanders and staffs use to make tactical decisions. It is a continuous process demanding constant commander and staff interaction. However, during time critical situations commanders and staffs abbreviate the military decision-making process and frequently deviate from the doctrinal method. The opening quotation illustrates just one way a commander and staff abbreviated the military decision-making process during what was considered to be a time critical situation.

The purpose of this thesis is to assist battalion and brigade commanders and their staffs make decisions in time critical situations. The 1984 version of FM 101-5, describes the military decision-making process, but does not specify techniques and procedures to accomplish each step or how to abbreviate the decision process when time is of the

essence. Observations from subject matter experts observing staffs during training indicate that they have difficulty conducting the military decision-making process.

Additionally, commander and staff officer comments indicate that the decision process is difficult, time consuming and ineffective during the quick pace of combat operations.

Information from the combat training centers (CTC), indicate that commanders and staffs abbreviate the military decision-making process in a variety of ways when little time is available to fully develop plans. The result is that plans are often less effective because the commanders and staffs have neglected important considerations addressed by the full military decision-making process.

Too fast paced operations. The 1/3-2/3 rule for planning was not applied at Bde level. This impacted on planning/prep time at Bn & Btry [sic] level.²

Unidentified Battalion Commander
Operation DESERT STORM

The thesis research question is a secondary question of the battle staff study initiated by the Center for Army Lessons Learned (CALL) in 1989. CALL's study was the result of observations from the National Training Center (NTC) indicating that brigade and battalion staffs were not developing detailed plans within the one-third available time guidance. Therefore, subordinate units did not receive sufficient time to plan and prepare before a mission. CALL's primary question was: is there an abbreviated

process that will enable battalion and brigade staffs to develop and disseminate plans quickly? If not, CALL's intent was to determine if an abbreviated decision-making process should be developed.

The battle staff study was never completed. As a result, CALL did not determine if an abbreviated decision-making process was obtainable or necessary. However, results from CTC focused rotations validated the earlier observations from the NTC that indicated that the majority of battalion and brigade staffs did not use the military decision-making process during combat operations. Observations also indicated that these staffs were using parts of the process, although in some cases in a different sequence than described in doctrine.

Determining if doctrine should develop and prescribe an abbreviated decision-making process for battalions and brigades will help commanders and staffs develop plans during time critical situations within the guidelines provided in doctrine (one-third available time). The result, if the process is adopted by units, should be more efficient use of time, providing more time to subordinates, and more detailed plans.

Scope

The scope of the thesis is confined to the problem of decision-making for battalion and brigade commanders and staffs.

Importance

This thesis can help solve the problem of developing effective orders quickly during combat operations. If it is determined that an abbreviated process is not necessary, other recommendations might be made, possibly to change training or organization of the staff to enable commanders and staffs to conduct the military decision-making process quickly. If it is determined that an abbreviated process is necessary, then the recommendation would be to change doctrine. The result in either determination, if implemented, would improve commander and staff performance in planning and executing successful combat operations.

Primary and Secondary Questions

Primary question: Should Army doctrine for command and control, (FM 101-5 Staff Organization and Operations) develop and prescribe an abbreviated military decision-making process for battalions and brigades?

Secondary questions:

1. Is the military decision-making process described in doctrine sufficient for planning during combat operations?
2. Should doctrine describe an abbreviated decision process different in structure than the military decision-making process?
3. Should the military decision-making process be simplified to make it faster to use? For example should steps be reduced in scope or simplified.
4. Should doctrine identify conditions for the use of an abbreviated decision-making process?
5. Should multiple decision-making processes be developed to be used under different conditions?
6. Should techniques and procedures for each step of the military decision-making process be described to make it easier to use?

Assumptions

There are three assumptions that must be considered to answer the primary and secondary questions. The first is that the commander determines a time critical situation.

FM 101-5 provides guidance to alter the military decision-making process in a time critical situation; however, the conditions are not defined. In this situation the commander determines the conditions based on the available planning

and preparation time for the mission, his and the staff's capability to develop an operations order, and the amount of time desired for subordinate planning and preparation.

Therefore, it is assumed that the conditions requiring a commander to use an abbreviated military decision-making process are when one-third of the available planning and preparation time is less than the time required for a commander and staff to prepare an operations order and provide two-thirds of the available planning and preparation time to subordinates.

The second assumption is that missions conducted at the CTCs are often time critical, and force a commander and his staff to abbreviate the military decision-making process. Battalions and brigades conduct an average of eight missions at the NTC during a fourteen day training rotation. Mission durations vary, ranging from eight hours to forty-eight hours, but during analysis it is assumed that the maximum amount of time for a mission is forty-eight hours. Therefore, a commander and staff, given the one-third time guidance for planning has fewer than eight hours to plan.

The third assumption is that both the commander and staff are required to develop a decision and plan. A battalion or brigade commander cannot conduct the military decision-making process and develop a plan alone. With the seven battlefield operating systems that must be

synchronized to develop a detailed and effective plan, the commander and all members of the staff must participate in the entire military decision-making process.

Definition of Terms

Combat Training Centers: The four training centers include the Combat Maneuver Training Center (CMTC), National Training Center (NTC), Joint Readiness Training Center (JRTC) and the Battle Command Training Program (BCTP). They provide active and reserve component forces with hands-on training in a near-combat environment.³

Combat Operations: FM 100-5 Operations cites three types of combat operations: offensive, defensive and retrograde. Combat operations are always conducted in a time critical situation.

Command and Control: The process through which the activities of military forces are directed, coordinated, and controlled to accomplish the mission.⁴

Commander's Estimate: The procedure whereby a commander decides how to best accomplish the assigned mission. It is a thorough consideration of the mission, enemy, terrain and weather, troops available, and time (METT-T) and other relevant factors. The commander's estimate is based on personal knowledge of the situation and on staff estimates.⁵

Military Decision-making Process: Process used by the commander and staff to arrive at and to execute tactical decisions. The process can also be used to reach decisions in other military activities as well. It is a continuous process.⁶ Figure 1 illustrates the sequence of the steps in the process.

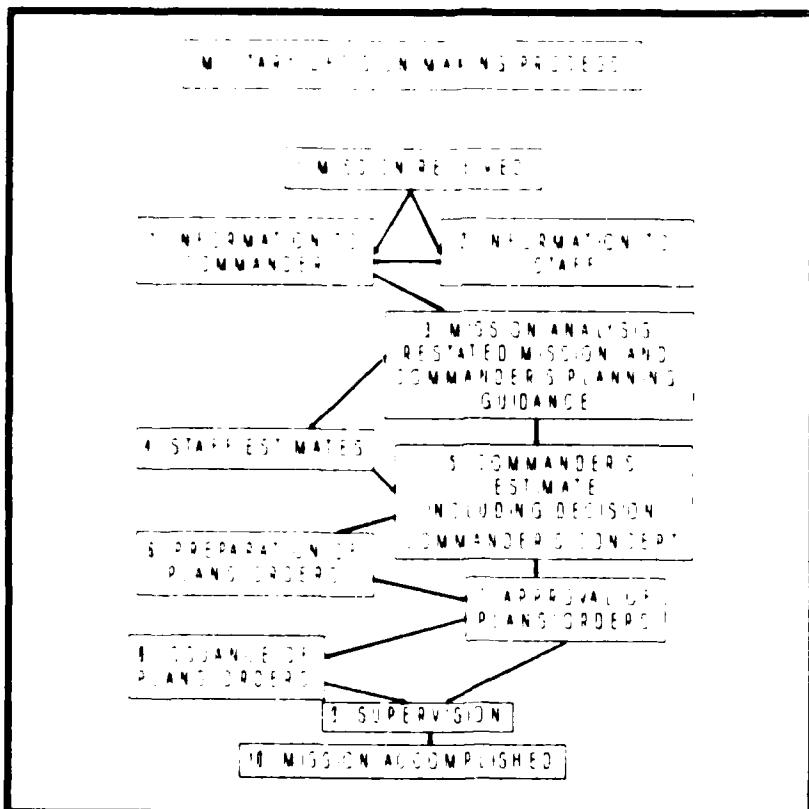


Figure 1

Techniques: The detailed methods used by commanders and forces in carrying out their duties.⁷

Procedures: A course or mode of action that describes how to perform a certain task. This is the lowest level of detail. Procedures deal with task level performance.⁸

Mission, Enemy, Troops, Terrain and Time available (METT-T): The phrase or acronym used to describe the factors that must be considered during the planning or execution of a tactical operation.⁹

Command and Control Process: The brigade command and control process is one of planning, directing, coordinating, and controlling the battle. The process centers around assigning missions and tasks to subordinate and supporting elements to accomplish an assigned mission.¹⁰

Troop Leading Procedures: The dynamic processes by which a commander receives, plans, prepares for combat, and executes a mission. Staffs provide information during these processes as time and situations permit. These procedures include the estimate of the situation.¹¹

Available Planning Time Guidance: To ensure that subordinate commanders and staff have sufficient time for planning, subordinate units should have at least two-thirds of the available time to develop their plans. Therefore, a superior command limits itself to one-third of the available time to plan, disseminate the order, and rehearse.¹²

Time Critical Situation: Identified in FM 101-5, a time critical situation is not defined except to note that the commander may have to proceed through the military decision-making process and issue oral orders based on his own knowledge of the situation without taking the time required to formally include the staff in the process. The commander would do this during steps 3, 5, and 7 (mission analysis, commander's estimate, and approval of plans/orders).

Doctrine: Fundamental principles by which military forces or elements thereof guide their actions in support of national objectives. It is authoritative, but requires judgement in application.¹³

Tactics: The method by which the commander uses combat power to win in battle.¹⁴

Task: Actions that have clearly defined results. They are observable and measurable. ¹⁵

Limitations

The only limitation is that at battalion and brigade levels there is no single method of decision-making. Commanders and staffs use the command estimate process, troop leading procedures, the military decision-making process, and combinations of each process. This problem will be reviewed in the literature review.

Delimitations

This thesis focuses the study by limiting literature and current information for analysis. The literature review only considers current unclassified information concentrating on infantry, mechanized infantry and armor battalion and brigade level decision-making. The analysis section only considers information derived from the Forces Command (FORSCOM) take home packages (THP) information from the CTCs during the last five years. This thesis only considers the steps one through nine of the military decision-making process to determine if and how the military decision-making process should be changed.

CHAPTER 2

LITERATURE REVIEW

Battalion and brigade commanders plan and execute battles and engagements in accordance with the tenets of U.S. Army doctrine: initiative, agility, depth, synchronization, and versatility. In relation to tactical decision making, commanders demonstrate the tenets by acting faster and forcing the enemy to react to his tempo while retaining freedom of action. To accomplish this task, commanders must develop the means to not only make rapid decisions; they must make these decisions faster than the enemy.

The brigade commander sets the terms of battle by establishing a rapid decision-making process that translates these essentials into clear, concise orders to subordinate battalion commanders and staff.¹

Even though doctrine emphasizes the need for rapid decisions, doctrine does not identify a decision-making process that enables commanders to do so. Doctrine describes the method for decision-making in a variety of manuals, but provides a somewhat detailed method for commanders and staffs to make rapid decisions while conducting combat operations only in FM 7-20, The Infantry

Battalion. While FM 101-5, Staff Organization and Operations provides notes at steps within the decision-making process when a commander must complete his estimate based on personnel knowledge to speed the process. In the absence of detailed doctrine, commanders and staffs abbreviate the process by removing steps rather than shortening each one. The result may be an ineffective plan, lacking the detail necessary to execute the mission.

The military decision-making process that is prescribed in FM 101-5, Staff Organization and Operations, identifies the steps within the decision-making process, but does not provide sufficient detail on how to conduct each step. The detail is provided in other doctrinal and non doctrinal publications produced by the Command and General Staff College and proponent schools. The absence of specific techniques on how to conduct decision making causes commanders and staffs to develop their own techniques in order to make rapid decisions.

Although a detailed explanation of the doctrinal decision-making process is neglected, it still provides commanders and staff officers with the basis for the method they develop. If an abbreviated decision-making process was described in doctrine, identifying the conditions for its use, it must be used more by commanders and their staffs.

The purpose of the literature review is to identify and research the information available to determine if an

abbreviated decision-making process is described in doctrine. Information for this study was collected and placed into three categories. The first category consisted of doctrinal manuals, the second consisted of unpublished reports, instruction guides, historical documents and theses, and the third contained observations from the CTCs.

FM 101-5, Staff Organization and Operations. Is a U.S. Army field manual that prescribes the basic doctrine for staff organization and operations. It is the primary source for the military decision-making process. The manual describes the duties and responsibilities of the staff to assist the commander and the responsibilities of the commander to the staff. The portions that are relevant to this study are the descriptions of the commander's estimate and the military decision-making process contained in chapter five.

FM 101-5 states that the commander's estimate results in a decision on how to accomplish a given mission. The commander's estimate is described as a process that uses the METT-T analysis, the commander's personal knowledge, and staff estimates. The commander's estimate is explained in greater depth in appendix E.

Chapter 5, "Decision-making," describes the military decision-making process as a procedure used by the commander and his staff to arrive at and execute tactical decisions. The process consists of ten steps (see definition, chapter 1

and figure 1.1), with the first eight taking the commander and staff from mission receipt to issuance of the plan or order. The explanation of the process recognizes the need for rapid decision-making in a time-constrained situation and notes that at select steps the commander may have to proceed through the process based on his own knowledge of the situation without taking the time to formally include the staff in the process.

The description identifies what is done by the commander and staff during each step, but it does not describe the details of how to conduct them. Although chapter 5 describes the decision-making process in general, appendix E provides a description of how to conduct some of the steps in greater detail in the description of the commander's estimate. However, methods to conduct some subordinate procedures are still ignored. There are no descriptions of how to develop courses of action (COA), wargame, synchronize the COA, or analyze COA.

FM 7-20, The Infantry Battalion. Presents doctrine for an infantry battalion to use in combat. The manual establishes a common base of tactical knowledge from which specific solutions to battalion level tactical problems can be developed. Its target audience is battalion commanders and their staffs, company commanders, and special platoon leaders for all infantry battalions: light, air assault,

airborne, ranger, and units structured under the H edition modified table of organization and equipment (Reserve Component).

FM 7-20 describes the military decision-making process as it appears in FM 101-5; however, it presents a method referred to as the troop leading procedures as the process for commander's and staffs to make decisions. The positive aspect of the manual is that it provides procedures to conduct mission analysis and the commander's estimate (COA development, COA analysis, and wargaming) that are either not contained in, or are different than, FM 101-5. For example, FM 101-5 does not contain a procedure for developing a COA. However, FM 7-20 describes a procedure by determining the decisive point, determining supporting efforts, purposes, essential tasks, identifying types of forces required to accomplish the mission, assigning control measures, and preparing a COA statement and sketch.

ST 100-9, The Command Estimate Process is a Command and General Staff College (CGSC) student text that describes the tactical decision-making process. The tactical decision-making process is actually the commander's estimate as described in FM 101-5; however, the student text provides greater detail on how to conduct each procedure, task, and technique involved in the commander's estimate.

ST 100-9 recognizes the military decision-making process as the framework within which the commander and

staff interact to arrive at and execute a decision; it does not describe the military decision-making process as it appears in FM 101-5. The text provides procedures internal to the military decision-making process as FM 7-20 does, but the detailed steps are different. For example, ST 100-9 describes the task of COA development by analyzing relative force ratios, arraying initial forces, developing the scheme of maneuver, determining command and control means and maneuver control measures, and preparing a COA statement and sketch. The development of COA is but one of the differences between the documents. Other differences are mission analysis, wargaming and COA comparison which are analyzed and recorded in chapter four.

A positive aspect of ST 100-9 is that it provides an abbreviated decision-making process in chapter 6. The process does not change in design from that explained in the tactical decision-making process. The process is abbreviated by reducing the tasks involved. For example, during the commander's planning guidance (step 3 of the military decision-making process) the student text states that a commander should develop the entire COA and issue it to the staff, allowing them to begin wargaming. This change abbreviates the process by significantly shortening the task of COA development. This example reduces the number of COA

doctrinally recommended for development and removes the staff from participating in COA development, thus reducing time.

FM 71-123, Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force, and Company/Team is a U.S. Army field manual final draft written by the US Army armor center and school. The manual defines the planning process as a systematic approach to formulate tactical plans. The manual explains that the planning process consists of several processes: troop-leading procedures, METT-T, estimate of the situation, and intelligence preparation of the battlefield (IPB). It describes the troop leading procedures as the method that commanders and staffs use to make tactical decisions rather than the military decision-making process. However, the steps of the military decision-making process are contained in the troop-leading procedures. FM 71-123 identifies two methods of COA development, the method described in ST 100-9 and the method described in FM 7-20.

The manual does not identify an abbreviated military decision-making process; it states that the troop-leading procedures can be adjusted to fit the tactical situation. The manual states "the less time a unit has, the more it must abbreviate troop-leading procedures." The intent of the manual is to abbreviate the decision-making process by shortening steps as described in ST 100-9.

FM 71-2, The Tank and Mechanized Infantry Battalion

Task Force. Is a U.S. Army field manual that describes the doctrinal and tactical employment of the tank and mechanized infantry battalion task force on the battlefield. It emphasizes synchronization of the battalion task force fight through the integrated planning and coordinated employment of all combat support and combat service support assets. Its intended audience is the battalion task force commander, his staff, company commanders, organic specialty platoon leaders, and supporting units.

FM 71-2 identifies troop leading procedures as a method for commanders to manage time. It recognizes the military decision-making process, as described in FM 101-5 and troop leading procedures as complementary actions that occur simultaneously. The manual does not identify an abbreviated decision-making process, but it does state that the decision-making process is as detailed, or as simple, as time allows. It also states that the commander plays a central role in the decision-making process indicating that the commander can control the speed of the decision-making process by shortening steps as necessary.

FM 71-3, Armored and Mechanized Infantry Brigade. Is a U.S. Army field manual that describes how the heavy brigade fights. The manual focuses on the brigade's organization, command and control, tactical employment, combat support, and combat service support. It is intended

for use by the heavy brigade commander and his experienced senior officers and noncommissioned officers.

Chapter two, of FM 71-3 "Command, Control, and Communications" does not identify any of the previously mentioned decision-making processes. The manual does note that the commander establishes a rapid decision-making process; however, it does not describe a procedure to make decisions rapidly. Section 1 of the chapter, "Command and Control Process," identifies the estimate of the situation as one of the planning tasks, but that is the only similarity to the military decision-making process. In regard to the speed of the process used the manual states that staff planning and the estimate process are informal. Further, planning processes are not discarded but conducted verbally or mentally rather than formally. This indicates that the intent of the manual is to speed the process by reducing formal or written estimates. The elimination of formal written staff estimates is the only technique provided.

FM 90-26, Airborne Operations is a U.S. Army field manual that discusses the employment of airborne brigades, battalions, and regiments in airborne operations. It discusses command and staff procedures, tactics, and techniques used in the planning and execution of parachute operations at brigade and lower echelons. The manual identifies the commander's estimate of the situation as a

process to plan tactical operations and gives a brief outline of the steps involved. The military decision-making process is mentioned and described by a chart; however, troop leading procedures is the recommended decision-making process.

FM 101-5, Command and Control for Commanders and Staff is in preliminary draft and prescribes the basic doctrine for staff organization and operations. Its purpose is the same as the existing FM 101-5. It will be the new primary source for the military decision-making process.

The manual describes the military decision-making process with some changes from the 1984 version. The most important aspects of the manual are the organization of decision-making procedures and the identification of abbreviated procedures. It identifies the military decision-making process as one form of several decision-making processes. It identifies the estimate process as one of two procedures. The first is the staff study, while the second estimate process contains three types of procedures: the command estimate, the abbreviated command estimate, and troop leading procedures. Troop leading procedures and the command estimate are described as in the 1984 manual, but in this edition there is greater detail.

The manual describes situations that force the commander to abbreviate the military decision-making process and provides two procedures to develop a decision. The

first is the abbreviated command estimate used when the commander determines he is in a time critical situation and the staff is present. The procedure follows the military decision-making process, but is characterized by the commander remaining with the staff and shortening each step. The second is troop leading procedures, used when the commander is in a "time critical situation" and the staff or significant members cannot assist the commander in the military decision-making process.

The Battalion Commander and Staff Guide to Troop Leading Procedures and the Estimate of the Situation is a 1989 U.S. Army Infantry School and Center guide distributed to battalion command designees during the precommand course. The document briefly describes the military decision-making process as identified in FM 101-5, but then identifies the troop leading procedures as the means for the commander to plan and execute the mission. The guide describes the estimate of the situation in great detail, but with task descriptions different than contained in CGSC ST 100-9. It relates the estimate of the situation to troop leading procedures with the estimate of the situation as a part of the troop leading procedures. This document was unique when it was distributed because it was one of two student texts or guides to describe the steps of the military decision-making process in detail.

Rapid Planning Techniques is a 1985 U.S. Army Infantry School and Center guide distributed to Infantry Officer Advanced Course students. The document focuses on orders preparation techniques under the one-third/two-third planning guidance, but also provides some "time critical situation" guidance for battalion staffs. The guidance is provided in a matrix and time line format identifying battalion staff tasks and time lines when conducting abbreviated troop leading procedures. The important aspect of this guide is that it provides an example of how to prioritize planning tasks in a time critical situation.

Brigade Operations Lessons Learned. This manual is an NTC Operations Group Brigade Trainers (Bronco) document that provides articles on problems experienced by brigades that train at the NTC with example solutions. This issue is one of several similar documents produced by the brigade training team; however, it is not identified by date or volume number. It was produced in 1989 and distributed locally at the NTC and to rotating units.

This document contains two articles concerning the military decision-making process. The first states that brigade staffs conduct the military decision-making process in a variety of ways. It also alludes to the fact that staffs observed at the training center do not plan in an orderly manner, resulting in vague plans. The articles identify tasks within the military decision-making process

that are critical in the development of a detailed order and then describe techniques on how to conduct each task.

The second article discusses wargaming, which was identified in the previous article as "critical." This article observes that most staffs reject wargaming because it is too time consuming. Although the article does not contain the detail that ST 100-9 provides on the task of wargaming, it does provide an illustrative example that makes the task clearer.

Home Station Determinants of Unit Combat Readiness.

An Army Research Institute (ARI) study to determine the relationship between NTC performance and home station practices and personnel characteristics. ARI gathered information on thirteen armor and mechanized heavy task forces, organized within seven brigades within three heavy divisions over a two-year period (1989-1990). One of the collection points was the relation of operations order quality to the decision-making process. One of the findings was that the doctrinal decision-making process results in effective orders. The ARI research team stated: "The most effective staffs are not blazing new trails in training, structure, or organization; they are simply applying existing doctrine."

An Overview of DESERT STORM Survey Responses. A 1992 U.S. Army Research Institute for the Behavioral and Social Sciences document on command and control. The document

provides an overview of data obtained through surveys of combat, combat support and combat service support commanders and their staffs, developed by the Center for Army Lessons Learned (CALL) and the Army Research Institute Field Unit at Fort Leavenworth (ARI) to investigate a range of command and control issues. The responses and data are the result of the 2,463 returned surveys from a population of 10,000 surveys distributed to officers and NCOs who participated during Operations DESERT STORM and DESERT SHIELD.

In regards to the military decision-making process, the surveys provided information that concluded that the estimate process was adequate, yet 32% provided some details on how the military decision-making process should be abbreviated. Additionally, a substantial number of respondents commented or implied that the lack of intelligence led to an abbreviated process. Of 1667 total respondents, 1396 (84%) stated the estimate process was adequate.

Executive Summary National Training Center Rotation

89-10. This publication is an NTC Operations Group document summarizing the findings of a CALL observation team. The purpose of the collection team was to observe the military decision-making process at the battalion and brigade levels. The team consisted of two subject matter experts: one from CALL and the other from CGSC.